



**2008**

**Final Water Quality Assessment  
and  
Impaired Waters  
Integrated Report**

Virginia Department of Environmental Quality

October 2008



# Public Comment





- Public comment period June 16 – July 25
- Download Integrated Report via DEQ website
  - <http://www.deq.virginia.gov/wqa/>
  - Maps available at <http://www.gisweb.deq.virginia.gov/>
- 1 teleconference held at 8 offices on June 24<sup>th</sup>
- Comments received by first class mail to:
  - Darryl M. Glover, DEQ Water Quality Monitoring and Assessment Manager, P.O. Box 1105, Richmond, Virginia 23218-1105
- Via e-mail attachment to [dmglover@deq.virginia.gov](mailto:dmglover@deq.virginia.gov)

# Key Factors For 2008 Assessment

- First six-year assessment in Virginia
  - Includes data from full statewide station rotation
- Assessment Period: January 2001 - December 2006
- Data from over 6000 stations collected
- 798 of 960 citizen monitoring stations used for assessment determinations (close to 3,000 miles)
- 54 VDH Fishing Advisories:
  - Mercury and PCB thresholds lowered in 2005
  - 20 Mercury; 39 PCBs; 1 Kepone, 6 combined

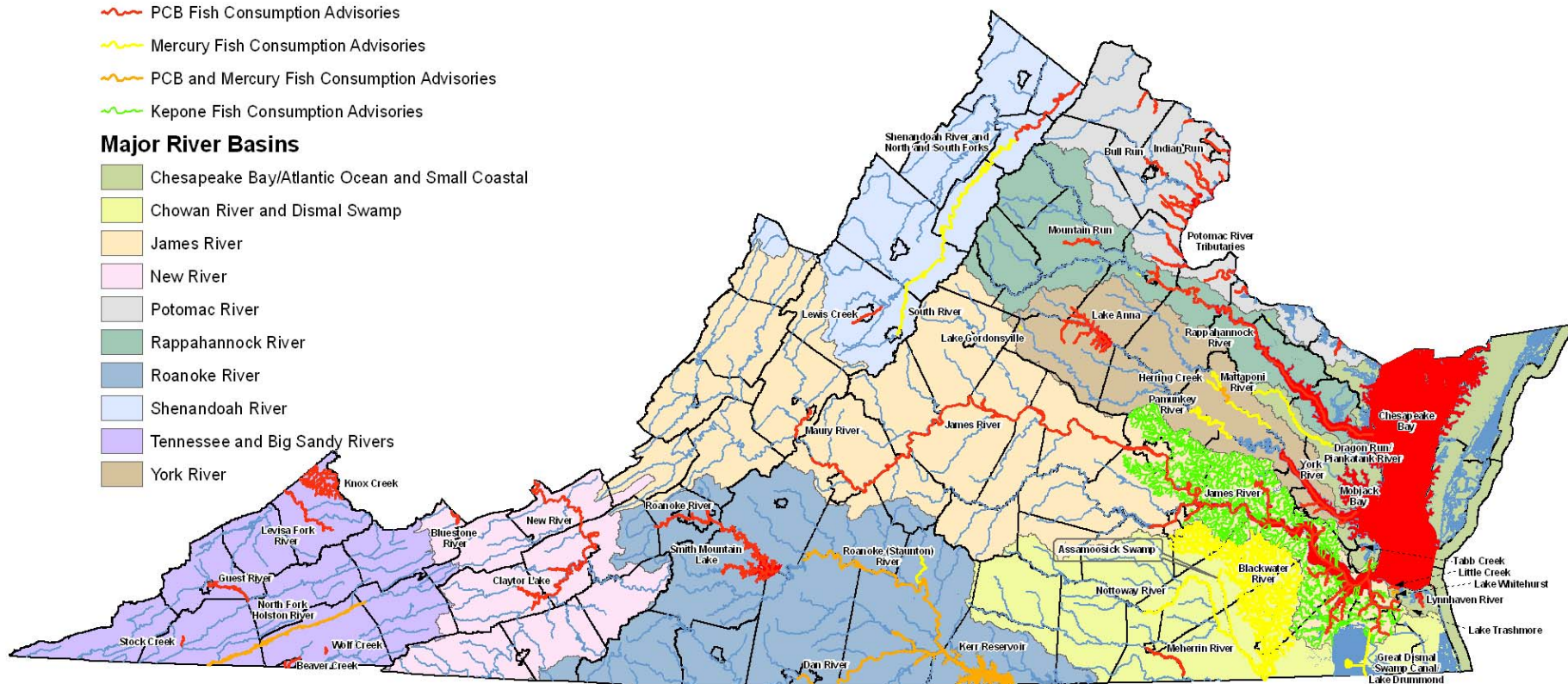
# Waters Under VDH Fish Consumption Advisories

## Identified in 2008 305(b)/303(d) Water Quality Integrated Report

-  PCB Fish Consumption Advisories
-  Mercury Fish Consumption Advisories
-  PCB and Mercury Fish Consumption Advisories
-  Kepone Fish Consumption Advisories

### Major River Basins

-  Chesapeake Bay/Atlantic Ocean and Small Coastal
-  Chowan River and Dismal Swamp
-  James River
-  New River
-  Potomac River
-  Rappahannock River
-  Roanoke River
-  Shenandoah River
-  Tennessee and Big Sandy Rivers
-  York River



0 12.5 25 50 75 100 Miles

Sources: Virginia Department of Health  
Virginia Department of Environmental Quality  
Virginia Department of Conservation and Recreation  
United States Geological Survey

Revised November 26, 2007

A complete list of fish advisories in Virginia can be found at

<http://www.vdh.virginia.gov/Epidemiology/dee/PublicHealthToxicology/Advisories/>

# Public Beaches

- 44 public beaches monitored by VDH
- Bacteria levels checked May – September
- May result in beach closures and swimming advisories
- 1 beach still impaired - Fairview (Potomac River)
- 4 beaches no longer impaired
  - Anderson's, Hilton, Huntington, King Lincoln Park (James River)



## 2008 Assessed Area

Waterbody Type	Total	Assessed	Attained Use	Impaired
Rivers (miles)	51,016	15,951 <sup>1</sup>	5,408	10,543
Lakes (acres)	115,835	112,310	18,266	94,044 <sup>2</sup>
Estuaries (sq. miles)	2,305	2,305	123	2,182





<sup>1</sup> River/stream miles assessed increased to a record 31%

<sup>2</sup> Lakes no longer monitored for DO on the bottom



# Assessments within 95% of Watersheds in 2002 – 2008 305(b) Reports

## Watersheds with Assessed Use(s)\* (2002 - 2008)

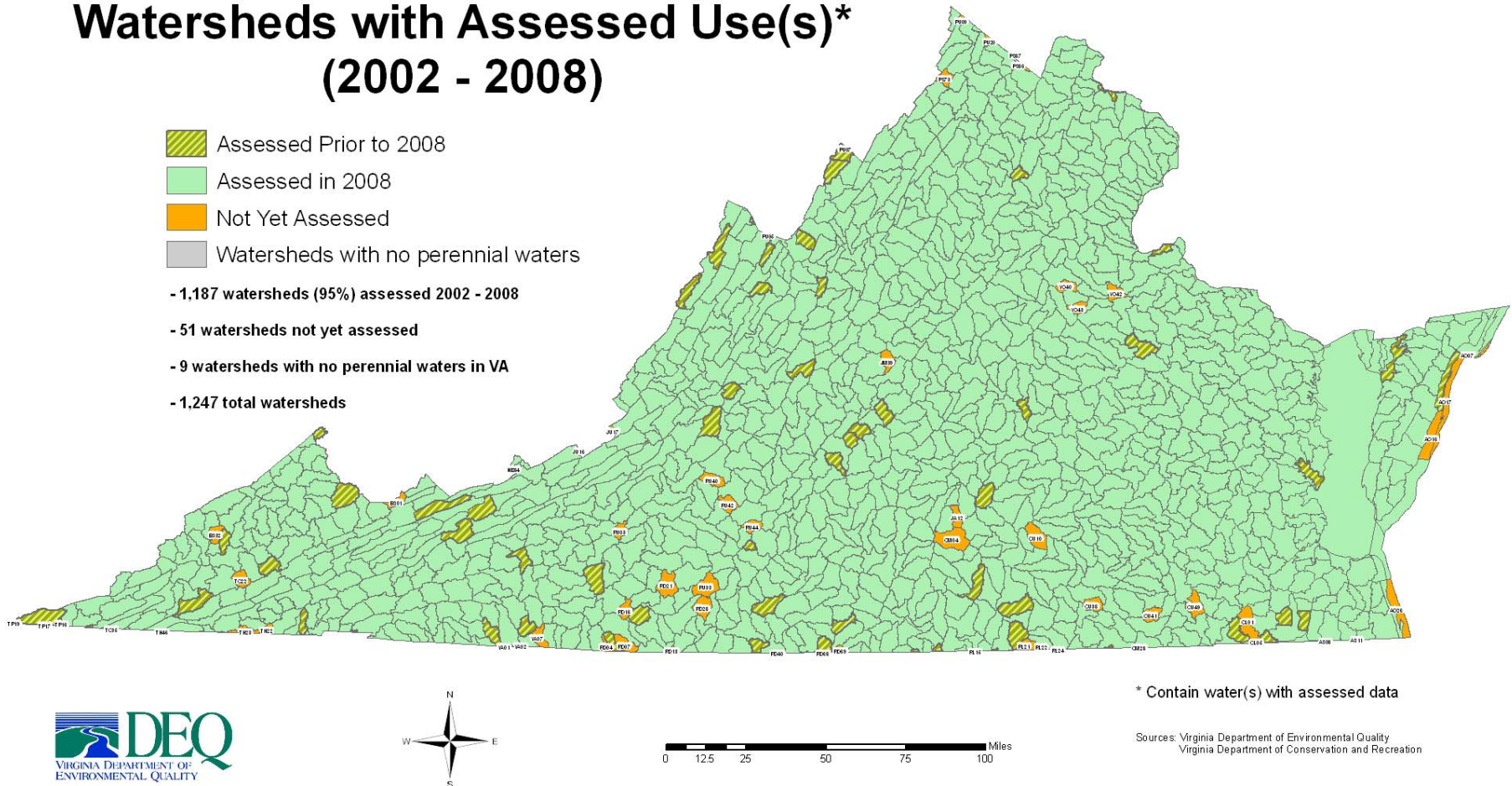
-  Assessed Prior to 2008
-  Assessed in 2008
-  Not Yet Assessed
-  Watersheds with no perennial waters

- 1,187 watersheds (95%) assessed 2002 - 2008

- 51 watersheds not yet assessed

- 9 watersheds with no perennial waters in VA

- 1,247 total watersheds



\* Contain water(s) with assessed data

Sources: Virginia Department of Environmental Quality  
Virginia Department of Conservation and Recreation

# Impaired Area Identified Per Assessment Cycle by Waterbody Type

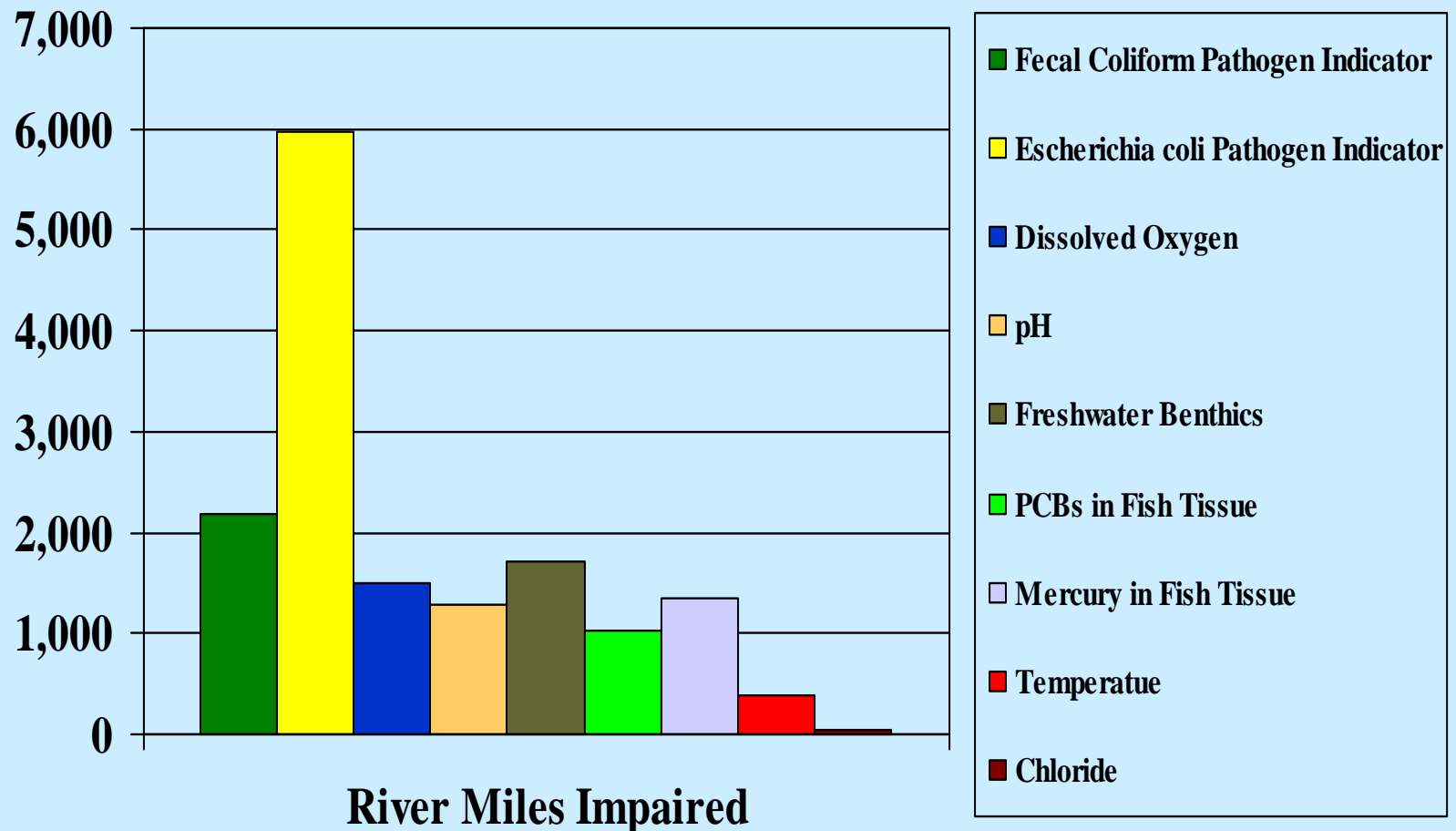
<b>Waterbody Type</b>	<b>1998</b>	<b>2002</b>	<b>2004</b>	<b>2006</b>	<b>2008</b>
<b>Rivers</b> 51,016 (miles)	2,611	4,838	6,931	9,002	10,543
<b>Lakes</b> 115,835 (acres)	0	115,558 <sup>1</sup>	89,834	109,201	94,044
<b>Estuaries</b> 2,305 (sq. miles)	437	1,689	1,907	2,212	2,182

<sup>1</sup> Area included lakes shared by Virginia and North Carolina. 25,724 acres determined to be in North Carolina and removed from Virginia's 2004 total impaired acreage.



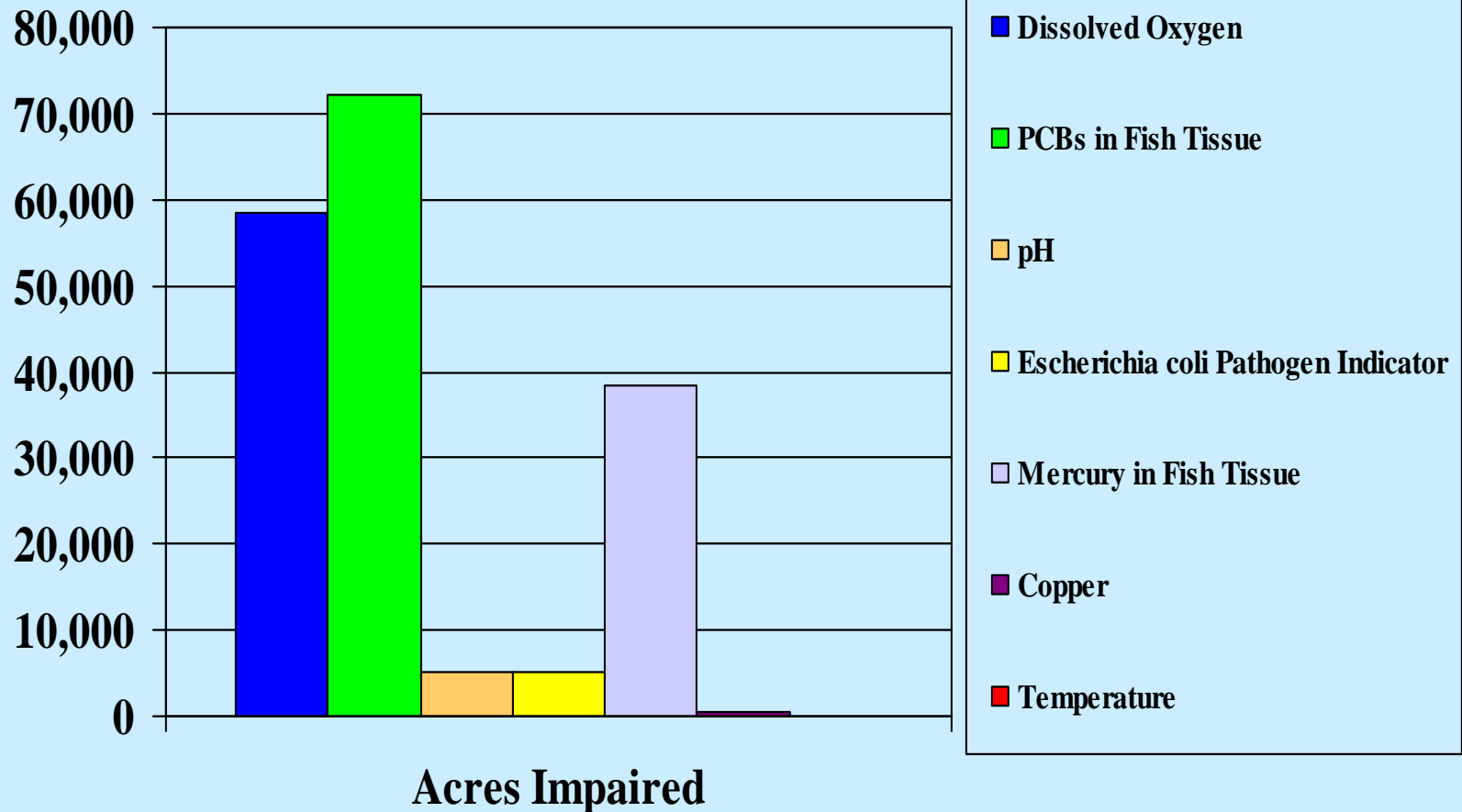
# 2008

## Impairment Causes for Rivers



# 2008

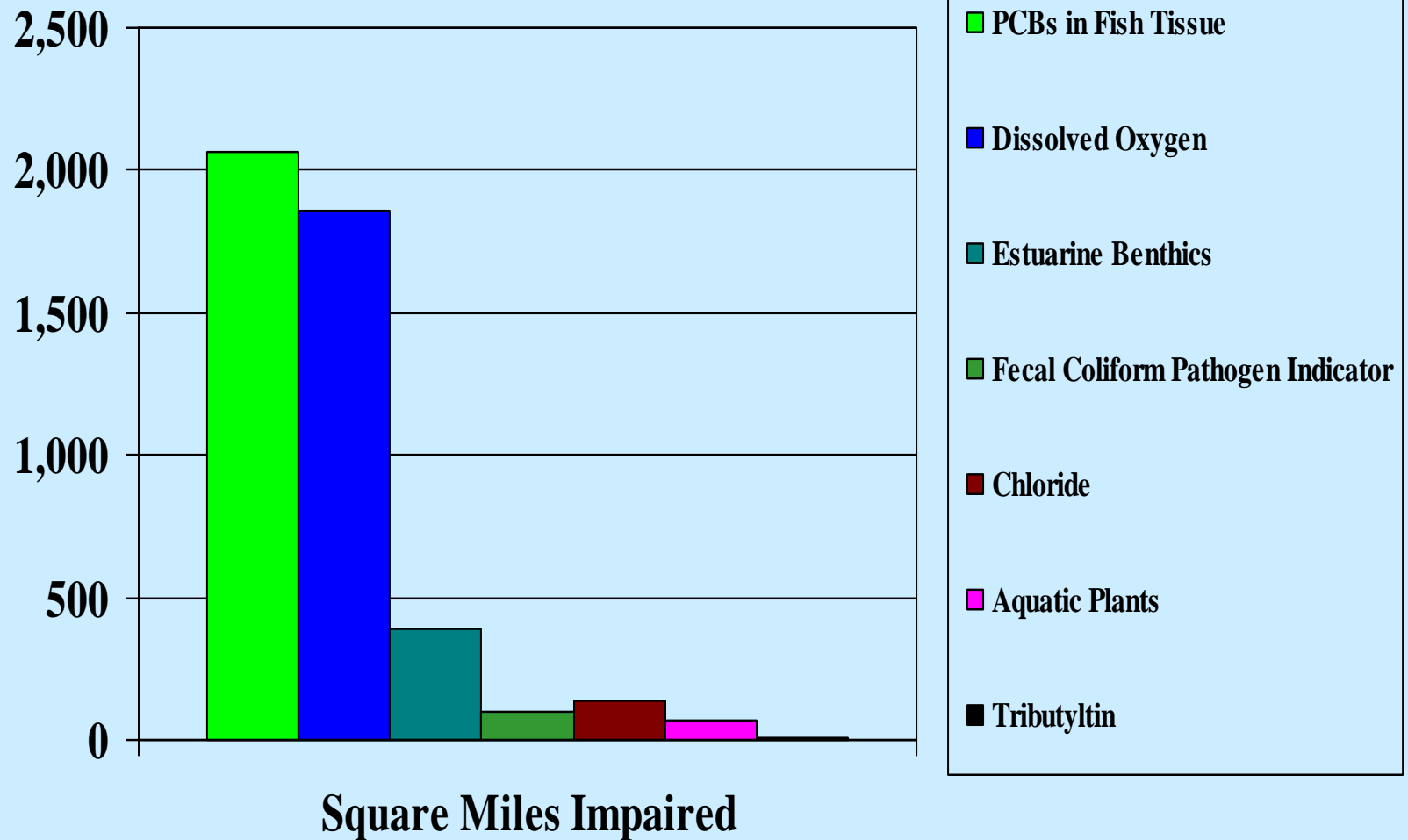
## Impairment Causes for Lakes





# 2008

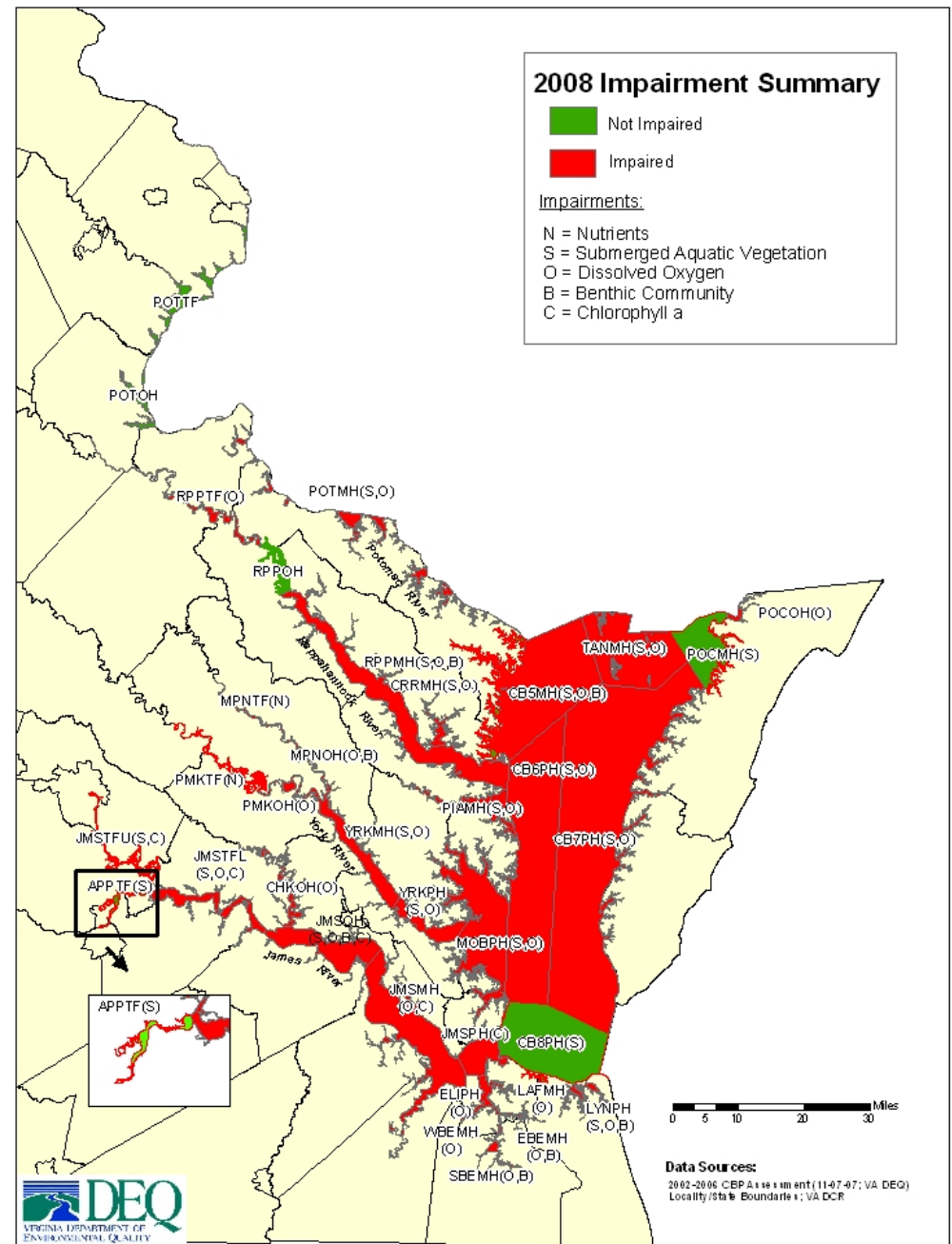
## Impairment Causes for Estuaries



# Chesapeake Bay - Aquatic Life Sub-uses

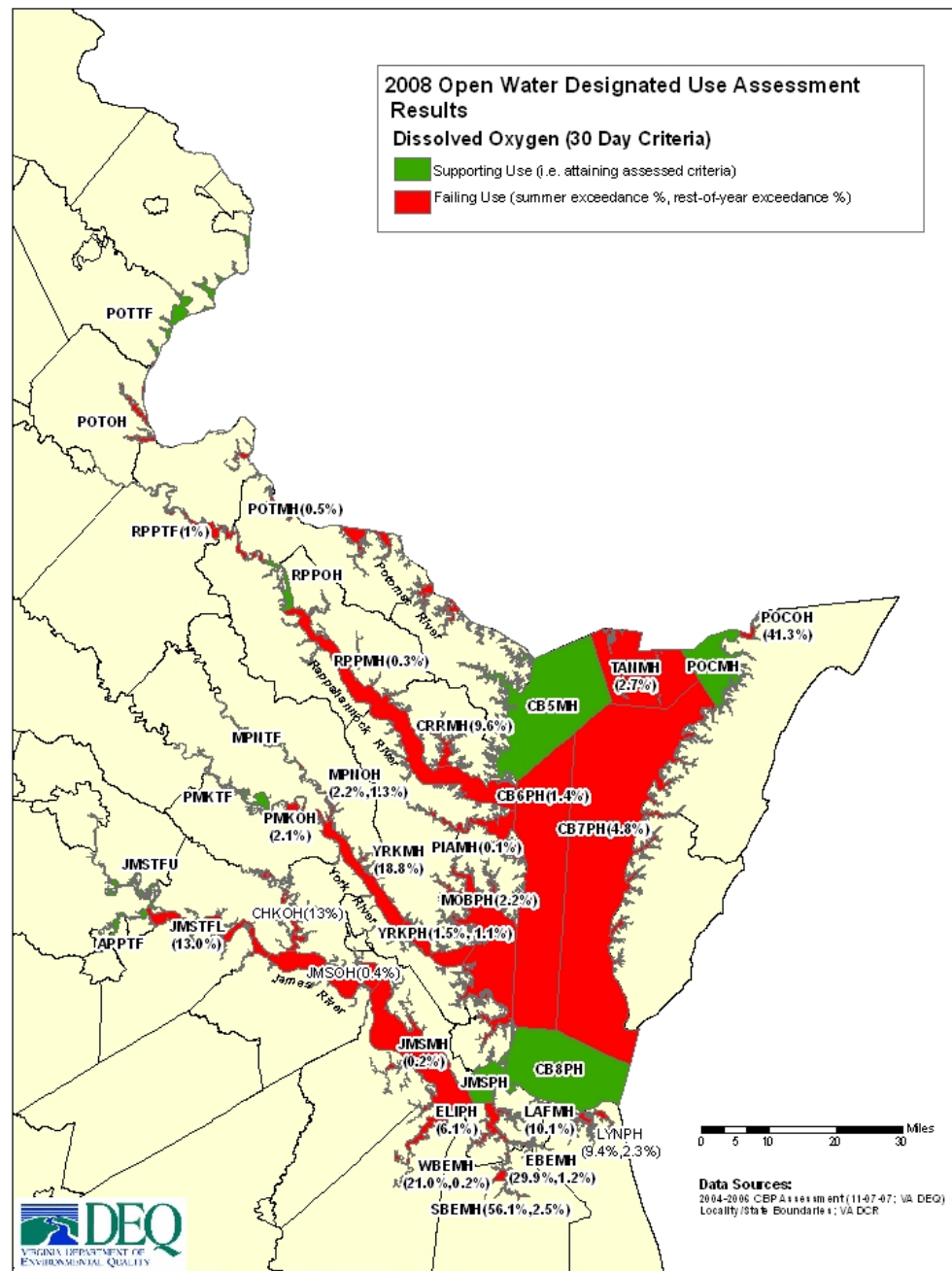
- Shallow Water - (SAV and Water Clarity)
- Spawning and Nursery (February - May)
  - Not assessed in 2008
- Open Water (Varies w/season)
- Deep Water (Summer Only)
- Deep Channel (Summer Only) – first assessed in 2008

- 87% of Bay and Tributaries impaired for at least one cause.
- A few areas meet Dissolved Oxygen and benthic community goals, but fail SAV/clarity criteria.



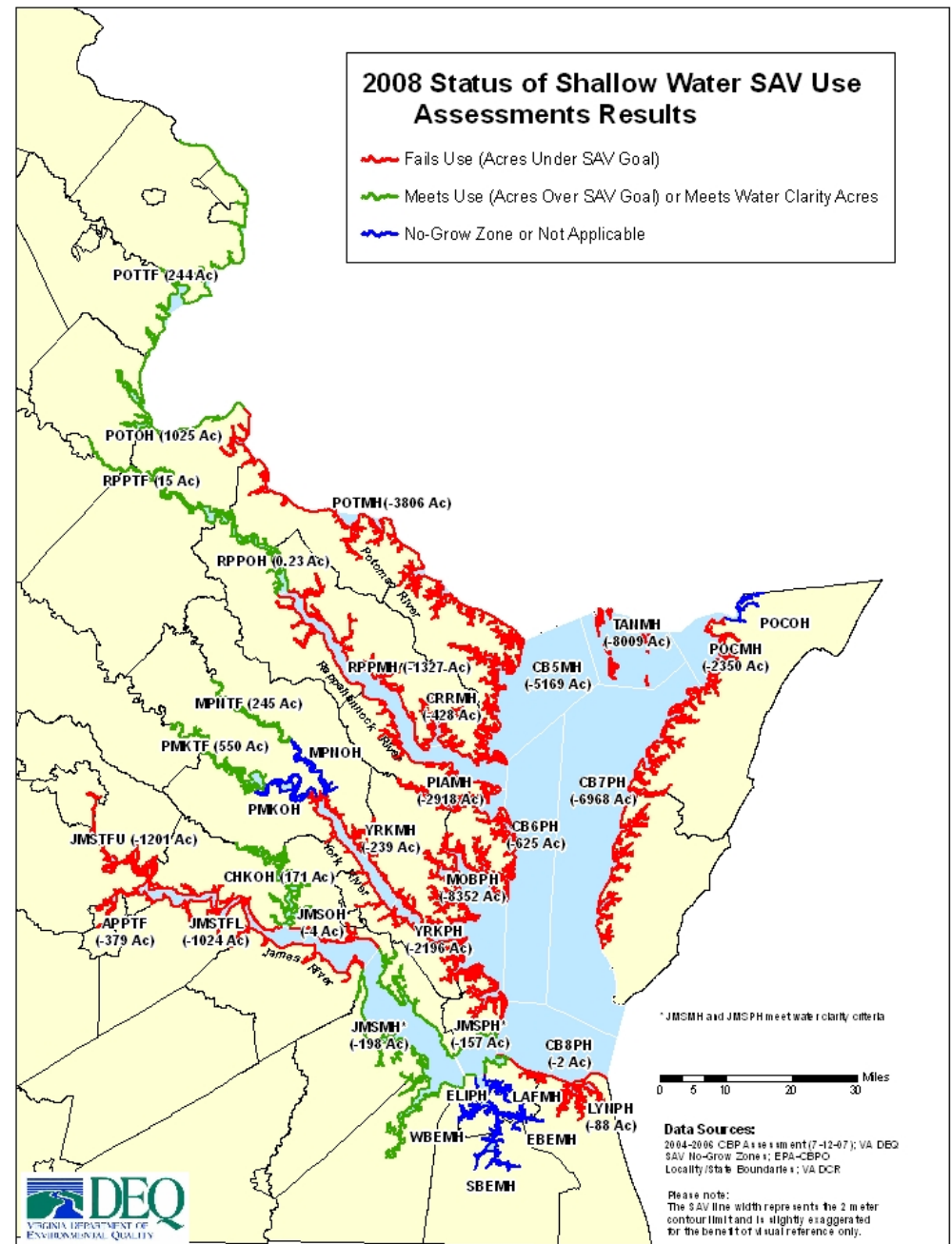


- Highest violation rates for Dissolved Oxygen in Elizabeth and Pocomoke Rivers.
- Mainstem Bay had relatively low violation rates.

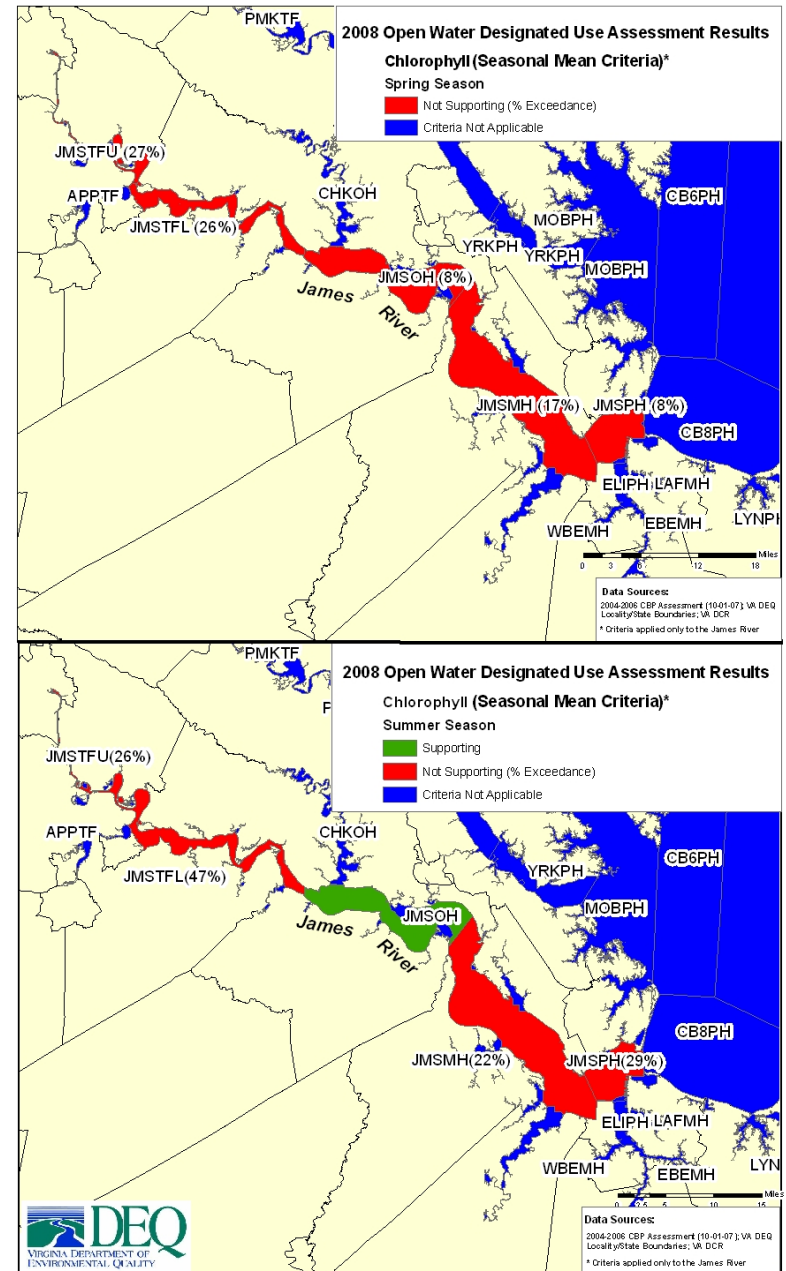




- Relatively large portions of the tributaries met SAV goals.
- We have achieved 46% of acreage goal for SAV restoration (target is 77,463 acres).



- Chlorophyll *a* Criteria were assessed in 2008 for the first time.
- Criteria were exceeded except in the Middle James during the summer season.





# New Impaired Water Listings

- New (Category 5A) Impairments in 2008
  - Areas not previously scheduled for TMDLs
  - Excluding both shellfish and natural impairments
  - 1,693 miles of Rivers (and Streams)
  - 4,071 acres of Lakes
  - 13 square miles of Estuaries
- 216 total TMDLs to be developed by 2010
- 1,711 = number of all TMDLs yet to be developed



# Delisting of Waters

- 318 Total Full and 310 Partial Delistings through December 2007
- 108 Additional Full Delistings Proposed for 2008
  - 343 miles of rivers/streams
  - 13,810 acres of reservoirs/lakes
  - 1 sq. mile of estuary



# Steps in TMDL Process

- Place Impaired Waters on 303(d) List due to Water Quality Standards violations
- Develop TMDL - Total Maximum Daily Load for Impaired Waters - 546 through May 2008
- Develop TMDL Implementation Plan
  - completed for 68 waters; 24 more in progress
- Remove Waters from 303(d) List when Water Quality Standards achieved

Extra Slides



# Integrated List - VA Subcategories

- Category 1 - Fully Support All Uses
  - *Virginia 1A* - TMDL Developed, Attaining All Uses
- Category 2 - Fully Support All Uses Assessed
  - Virginia 2A - Support All Monitored Uses
  - Virginia 2B - Waters Of Concern But No Water Quality Standard Exists, Or A Screening Value Was Exceeded
  - *Virginia 2C* - TMDL Developed, Attaining Use For Which It Was Originally 303(d) Listed But Insufficient Data for Some Uses

# Integrated List - VA Subcategories

- Category 3 - Insufficient Data
  - Virginia 3A - No Data Available
  - Virginia 3B - Data Available But Insufficient Quantity
  - Virginia 3C - Citizen Monitoring Indicates Problem
    - Waters Evaluated And Prioritized For Follow-Up Monitoring
  - Virginia 3D - Citizen Monitoring Indicates No Problems

# Integrated List - VA Subcategories

- Category 4 - Impaired TMDL Not Needed
  - Virginia 4A - TMDL Developed and EPA Approved
  - Virginia 4B - Other Regulatory Requirements Will Assure Attainment In Near Future (e.g. NPDES)
  - Virginia 4C - Impairment Caused By Pollution
- Pollution - No Polluting Substance (e.g. flow)
- Pollutant - Polluting Substance (e.g. bacteria)

# Integrated List - VA Subcategories

- Category 5 - Impaired, TMDL May Be Needed
  - Virginia 5A - Non-Shellfish (TMDL Required)
  - Virginia 5B - Shellfish (TMDL Required)
  - Virginia 5C - Naturally Impaired
    - TMDL might not be required. Designated use and water quality standard might be changed based on study.
  - Virginia 5D - TMDLs Developed For Some Causes  
Additional TMDLs Needed For Other Causes
  - Virginia 5E - Effluent Limited Waters With Compliance Schedule After The Next Assessment Date
  - *Virginia 5F* - Delisting Approved, But The Water Remains Impaired Due To Other Causes
  - Virginia 5M – Impaired due to atmospheric deposition of Hg